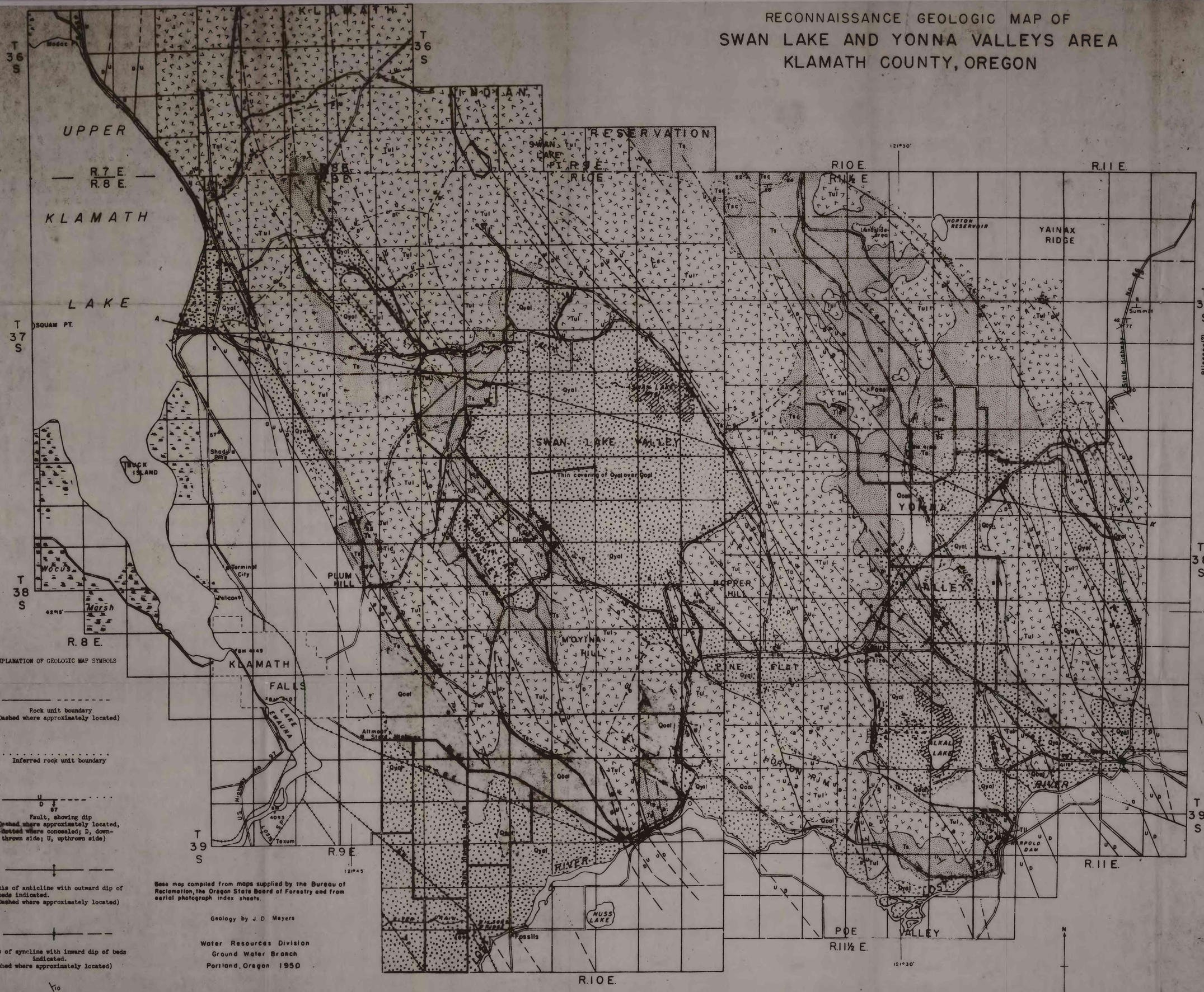
RECONNAISSANCE GEOLOGIC MAP OF SWAN LAKE AND YONNA VALLEYS AREA KLAMATH COUNTY, OREGON



EXPLANATION OF GEOLOGIC MAP SYMBOLS

Rock unit boundary (Dashed where approximately located)

Inferred rock unit boundary

Fault, showing dip (Dashed where approximately located, dotted where concealed; D, downthrown side; U, upthrown side)

Axis of anticline with outward dip of beds indicated. (Dashed where approximately located)

Axis of syncline with inward dip of beds indicated. (Dashed where approximately located)

Direction of strike and direction and amount of dip of sedimentary beds or volcanic extrusives.

x Fossils

Fossil site described in text.

Base map compiled from maps supplied by the Bureau of Reclamation, the Oregon State Board of Forestry and from aerial photograph index sheets.

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EXPLANATION

Qyal — Younger alluvial deposits

(Silt, sand, clay, and gravel, and some angular to subangular cobbles of basalt intermixed with volcanic ash. Zones of coarse material over impervious layers yield small quantities of perched ground water to shallow dug wells.)

Recent

Qoal — Older alluvial deposits

(Massive diatomaceous ash and diatomite; clays, sands, volcanic ash, pumice, and gravels. Greatest known thickness penetrated in wells about 400 feet but maximum thickness unknown. Only small segments of these rocks are exposed in the valley areas where they are generally covered by Recent alluvium; they are principally known from drillers' well logs. Generally impervious except where the coarse-grained zones contain moderate quantities of ground water, commonly in a perched position.)

Pliocene(?) and Pleistocene

QUATERNARY

Unconformity

Tul — Upper lava rocks

(Essentially this unit consists of surface flows of basalts, andesites, and some dacites locally, also massive volcanic agglomerates, and locally cinder cones of volcanic scoria cut by basalt dikes. Total thickness of the complete unit varies from 20 up to 1,600± feet. Flow breccia, cinder scoria, and jointed and fractured zones in lava rocks yield large quantities of ground water where below level of regional ground-water table. In the valley areas, confined ground water is derived from these rocks wherever they are covered by later fill.)

Unconformity

Ts Tsc — Sedimentary beds

(Semi-consolidated basaltic lapilli tuff, iron-stained diatomites, massive diatomaceous ash, stratified sandstone, laminated siltstone, volcanic ash, pumice, and semi-consolidated gravels, Ts; these beds vary in thickness up to a total of 1,000± feet. The greatest observed thickness is exposed in areas of former tuff-cones. Interfingering of these beds of different lithology may greatly reduce the total thickness present. These sedimentary rocks are locally intruded by basaltic dikes and sills contemporaneous in age with the Upper lava rocks. Exposed areas of remnant cones of lapilli tuff were shown on the map; Tsc. Permeability of this unit is variable; the coarse, uncemented zones in the lapilli tuff yield moderately large quantities of ground water where below the regional ground water table, whereas the lacustrine sedimentary rocks are relatively impervious except where coarse layers exist which yield moderate quantities of ground water for domestic and stock use.)

Pliocene

TERTIARY

Unconformity

Tll — Lower lava rocks

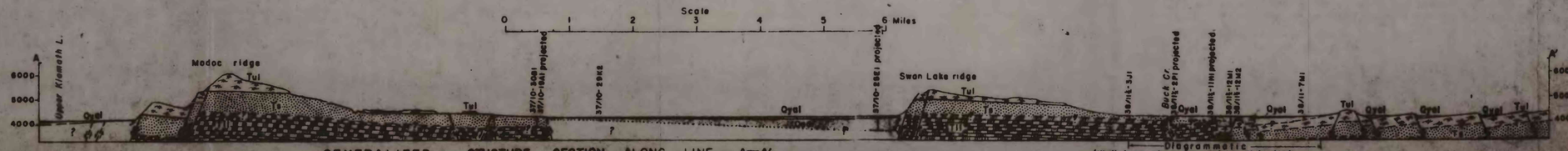
(Largely olivine basalt with columnar jointing and thin interbeds of tuff; a thickness of only 140 feet exposed in the valley areas. Drillers' well logs show at least 300 feet, but total thickness is unknown. Flow breccia, cinder scoria, fractured and jointed zones yield large quantities of ground water where below level of regional water table. The ground water in these rocks is generally confined beneath the valley areas by the sedimentary materials of Tertiary and Quaternary age.)

Tid — Intrusive igneous rocks (Tertiary)

(Basaltic or andesitic rocks cutting through or into the lower sedimentary beds. They are related in age, or feeders to, the Upper lava rocks; sill, Tis; dike, Tid; volcanic neck, Tin.)

GENERALIZED STUCTURE SECTION ALONG LINE A—A'
(Vertical exaggeration is 2 times)

Scale 0 1 2 3 4 5 6 Miles



Diagrammatic (Well logs show zone of small faults)